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REMARKS

Status of Claims:

Claims 31-32 are now pending herein. Claim 24 has been canceled and Claim 31, the only independent claim, has been amended herein to even further distinguish over the art of record.

Rejection of Claims 24 and 31-32 under 35 U.S.C. 103(a)

Claim 24 was rejected under 35 U.S.C. 103(a) as being unpatentable over Okabe et al (U.S. Patent No. 5,925,911, hereinafter "Okabe") in view of Kubo (U.S. Patent No. 5,463,241, hereinafter "Kubo").

Claim 24 was also rejected under 35 U.S.C. 103(a) as being unpatentable over Darwish et al (U.S. Patent No. 5,674,766, hereinafter "Darwish").

The cancellation of Claim 24 renders each of these rejections moot.

Claims 31-32 were rejected under 35 U.S.C. 103(a) as being unpatentable over Okabe et al (U.S. Patent No. 5,925,911, hereinafter "Okabe") in view of newly-cited Williams et al (U.S. Patent No. 5,945,709, hereinafter "Williams"), and also as being unpatentable over Darwish in view of Williams.

In view of the foregoing claim cancellations and amendments, each of the rejections is respectfully traversed and reconsideration is requested.

Independent Claim 31, as amended herein, is directed to a method of forming a trench DMOS transistor device. The method recites the steps of:

- (i) providing a substrate of a first conductivity type, said substrate acting as a common drain region for said device;
- (ii) depositing an epitaxial layer of said first conductivity type over said substrate, said epitaxial layer having a lower majority carrier concentration than said substrate;
- (iii) forming a body region of a second conductivity type within an upper portion of said epitaxial layer;

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(iv) etching a trench extending into said epitaxial layer from an upper surface of said epitaxial layer;

(v) forming an insulating layer lining at least a portion of said trench;

(vi) forming a low resistivity deep region of said first conductivity type below a portion of said trench, the deep region extending from an upper surface of the epitaxial layer into the substrate, said deep region acting to provide electrical contact with said substrate;

(vii) forming a conductive region within said trench adjacent said insulating layer; and

(viii) forming a source region of said first conductivity type within an upper portion of said epitaxial layer over the deep region -- especially, as shown in figure 3F, the source region 212 within the upper portion of said epitaxial layer completely overlies the deep region 219.

The embodiment of figures 9A-9D in Williams, which the Action alleges illustrates the source region (212) of the Applicant's invention recited in Claim 31, fails to teach or suggest a source region within an upper portion of said epitaxial layer which completely overlies the deep region 219. As shown in figures 9C and 9D of Williams, the region N⁺ (which is allegedly analogous to the source region of the Applicant's claimed invention) is within N⁺ sinker 70, but overlies *only a portion of the region 70* (which is allegedly analogous to the deep region 219 of the Applicant's claimed invention). To the contrary, as recited in Applicant's amended independent Claim 31, the source region 212 within the upper portion of said epitaxial layer overlies *all* over the deep region 219.

Moreover, Okabe, Darwish and Kubo, separately or in any permissible combination, do not teach or suggest a source region which overlies the deep region.

For at least the foregoing reason, it is respectfully submitted that independent Claim 31, as amended herein, is patentable over Okabe, Darwish, Kubo and Williams. Claim 32 is dependent on, and contain all the limitations of, Claim 31, and as such are submitted to be patentable for at least the same reason as Claim 31.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the outstanding claim rejections under 35 U.S.C. §103(a).

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CONCLUSION

Applicants submit that Claims 31-32 are presently in condition for allowance, early notification of which is earnestly solicited. Should the Examiner be of the view that an interview would expedite consideration of this Amendment or of the application at large, request is made that the Examiner telephone the Applicant's attorney at (908) 518-7700 in order that any outstanding issues be resolved.

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The Office is authorized to charge any fees required to deposit account number 50-1047.

Respectfully submitted,


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